The GLOBE Program: GLOBE in Action

The GLOBE Program

Exploring the GLOBE Web site: www.globe.gov

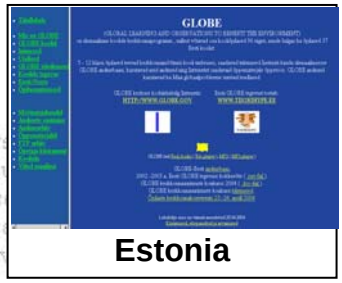
- **<u>EDUCATION AND SCIENCE:</u> Student investigations and school collaborations, access to the online Teacher's Guide.**
- **<u>GLOBE DATA:</u> Access to student-collected data, mapping and graphing tools.**
- **<u>GLOBE PARTNERS:</u> Access to country/regional coordinator and school information.**
- **<u>LIBRARY:</u> Access to student, teacher and partner resources.**
- **<u>INFO & HELP:</u> Learn about GLOBE and Frequently Asked Questions (FAQs).**

The GLOBE Web site… around the World

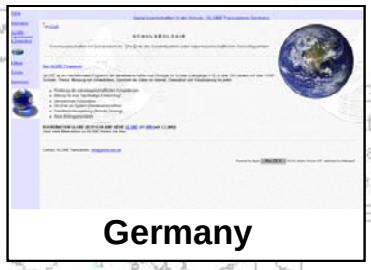

Croatia

Czech Republic


Denmark


Estonia

Finland


Germany

GLOBE Europe

Greece

Hungary

India

Italy

Japan

Latvia

Lithuania

Netherlands

New Zealand

Norway

Poland

Switzerland

Thailand

United Kingdom

GLOBE Learning Expeditions

GLOBE Learning Expeditions (GLEs) are organized every 2 to 3 years in order to provide students from around the world the opportunity to meet one another, establish friendships and develop collaborative partnerships that will enhance their future GLOBE experience. These conferences also provide teachers an opportunity to share ideas and challenges from their GLOBE experiences, to attend protocol and activity enrichment sessions, and to build connections for research efforts between schools. GLEs have occurred in 1998 (Helsinki, Finland), 2000 (Arkansas, U.S.A.), and Šibenik, Croatia (2003). The next GLE is tentatively scheduled for 2008 in a location still yet to be determined.

The 2003 GLE took place in Šibenik, Croatia. During the week, students presented their research projects and showcased their use of GLOBE Earth Science data. Students also participated in a day of fieldwork at Krka National Park and on the island of Obonjan. The GLE provided students with an opportunity to take GLOBE measurements in a new environment working side-by-side with GLOBE Scientists!

Participants included approximately 400 students and teachers from the following 24 countries:

Argentina	Estonia	Poland
Bahrain	Finland	Qatar
Cameroon	Germany	Spain
Canada	Iceland	Switzerland
Croatia	Hungary	Tanzania
Cyprus	Japan	Thailand
Czech Republic	Lebanon	U.K.
Egypt	Norway	U.S.A.*

* The U.S. Delegation consisted of students from Alaska, Arizona, California, Idaho, Indiana, New Jersey, New York, Puerto Rico, Texas, and Washington D.C.

For further information about GLEs visit the following links on the GLOBE Web site:

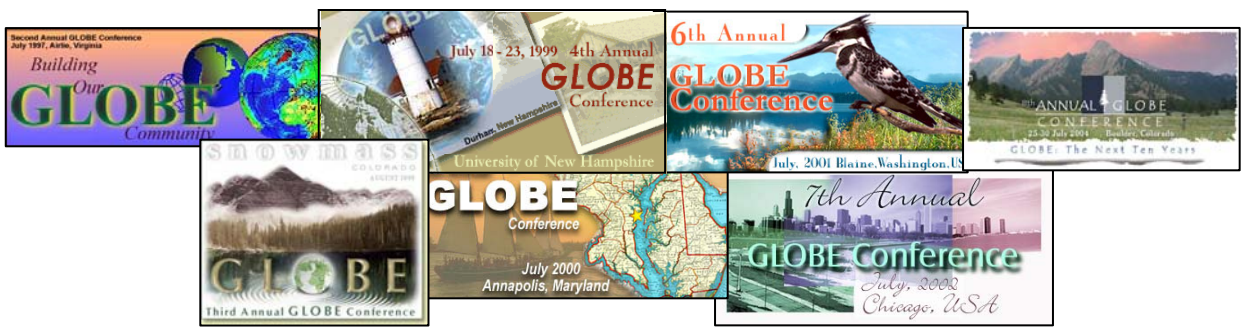
GLE in Helsinki, Finland:
www.globe.gov/fsl/events/helsinki2/templ.cgi?helsinki&lang=en&nav=1
GLE in Arkansas, U.S.A.:
www.globe.gov/fsl/html/templ.cgi?symposium06252000_summary&lang=en&nav=1
GLE in Šibenik, Croatia:
www.globe.gov/hq/templ.cgi?gle2003&lang=en&nav=1

The GLOBE Annual Conference

The 9th Annual GLOBE Conference, "GLOBE 2005: Global - Regional - Local," was held on 31 - July - 5 August, 2005, in Prague, Czech Republic. The Annual Conference brought together GLOBE Country Coordinators and U.S. Partnership Coordinators, Education and Science Principal Investigators, GLOBE Program Staff, and others to address key education and science elements of GLOBE. This event was the first GLOBE Annual Conference to be held outside of the U.S. The meeting was organized by GLOBE Europe, in collaboration with the GLOBE Program Office, and was graciously hosted by Tereza Association, the organization responsible for GLOBE in the Czech Republic. More than 150 individuals from 34 countries participated actively in presentation, discussions, workshops and social events. Presentations, Abstracts (in PDF), Country Reports, Post-conference Summary and Photo album are available on the GLOBE Web site at: www.globe.gov/fsl/html/templ.cgi?prague_2005&lang=en&nav=1

The 10th Annual GLOBE Conference, "The New Decade for Global Sustainable Development", will be hosted by GLOBE Thailand in 2006. For further information visit: http://globethailand.ipst.ac.th/Annual2006/

Past annual conferences have been held at Airlie, Virginia (1996 and 1997), Snowmass, Colorado (1998), Durham, New Hampshire (1999), Annapolis, Maryland (2000), Blaine, Washington (2001), Chicago, Illinois (2002), and Boulder, Colorado (2004). No annual conference occurred in 2003 in order to dedicate efforts toward the GLE (see previous page). Information about these conferences can be found on the GLOBE Web site at: www.globe.gov/fsl/html/templ.cgi?conf_archive&lang=en&nav=1



ST. CROIX SOURCE
Friday, Apr. 30, 2004 St. Croix, US Virgin Islands

STUDENTS IN WIRELESS WORLDWIDE WEB CHAT

by Karen D. Williams

April 24, 2004 - During an Earth Day forum, members of two St. Croix Central High School science clubs logged on to a nationwide program using wireless laptops.

During the two-hour Web chat session that started at about 12:30 p.m. Thursday, CHS students in their campus technology-learning center communicated with scientists and other students across the world.

CHS students send data to scientists during Contrail Count-a-thon

While the students sent text and responded in both English and Spanish, three local advisers guided the experiential learning process linking them to chat teams in Mexico, Trinidad, Florida, Liberia and Costa Rica.

CHS participants fielded questions from the Universidad Vasco de Quiroga and the International School of Port of Spain. Evan Williams at the Miami Springs Middle School asked if they had seen condensation trails in the Virgin Islands -- a term that was new to CHS students.

Contrail Count-a-thon was a worldwide experiment sponsored by the National Aeronautics and Space Administration and led by scientists to help students gain a better understanding of the earth. Earth Day 2004 is the 10th year anniversary of GLOBE, a science education program created to offer hands-on experience for primary and secondary students around the world.

GLOBE is a cooperative effort of schools partnering with universities and government organizations. Formally, it's Global Learning and Observations to Benefit the Environment, but the program is mainly known now just by its acronym. It is designed to contribute data for scientists to use in their research, help students increase their science and math skills and nurture future scientists and researchers.

Students perform learning activities which involve investigations of the atmosphere, hydrology, soil, land cover, biology, global positioning systems and seasons.

Advisers offered one-on-one advice and the group also received instruction via on overhead projection system. At CHS, students of GLOBE and of another group, Nature's Environmental Role Models, used 15 Apple laptops to receive signals from a round wireless hub approximately 8 inches in diameter. The hub was connected to an Ethernet, T1 or DSL line.

CHS students joined NERM after they completed beach, community and campus cleanups around the island. The GLOBE program began at CHS in 1998 and NERM began in 2002.

Susan Allick, technology specialist and GLOBE coordinator, said she came across the program while conducting research at the University of British Columbia. She said scientists came to the University of the Virgin Islands and trained a group of science-based facilitators for the program.

"Students wanted to do more," said Jesus Espinosa, Science Department chair. He

joined the program in 2000 after receiving training as a facilitator. "This is something the students enjoy doing." He said research and experiments really grab the students' interest.

Espinosa said the GLOBE club also monitors the climatic conditions daily through a weather-monitoring station mounted on the northeast end of the CHS campus. Every school day between 11:05 a.m. and 12:05 p.m., temperature, rainfall and ozone readings are logged.

Espinosa said the next phase of the project for NERM students will be a Power Point presentation on their findings.

Sharon Prudoff, head librarian and grant writer for the program, said the wireless equipment -- an approximately $30,000 cost -- was purchased through a federal grant. "It makes classroom learning very interactive. It can make learning more fun and engaging."

Tenth-grade student Zydmarie Sanes, a NERM member, said the Count-a-thon was very interesting because she was able to chat with learners around the world. "We can compare and contrast other procedures to get information."

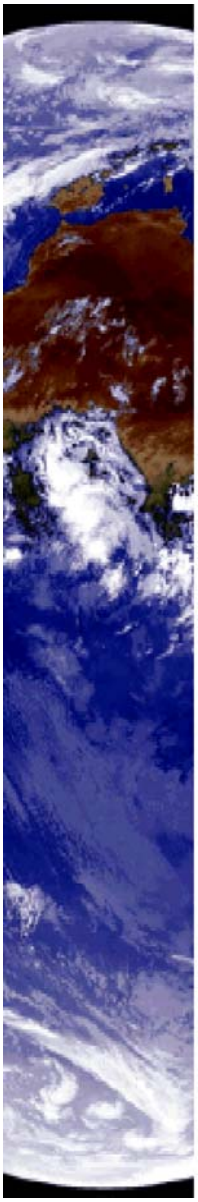
Pedro Reyes, a GLOBE member, said Espinosa encouraged him to get involved with the weather-monitoring aspect of the program. The station measures air pollution, level of rainfall and acid rain. The readings are input into a database and sent to NASA weekly.

Allick said the next step for GLOBE is to use the data collected for predictions or discovering trends in the environment.

She said 12,000 schools and more than 100 countries participate worldwide. GLOBE is not limited to public schools. She said GLOBE clubs meet at six schools on St. Croix and one on St. Thomas. All schools were invited to the Web chat.

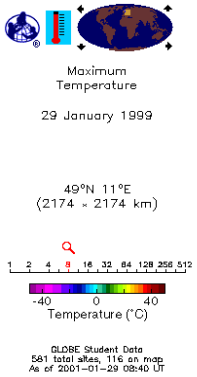
For more information on GLOBE visit the GLOBE Web site at www.globe.gov

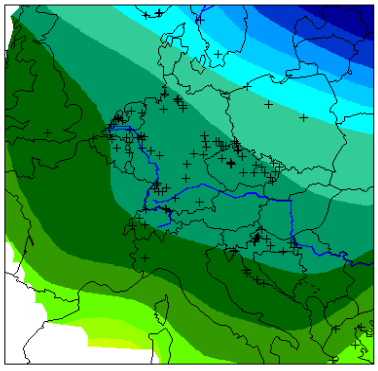
GLOBE Visualizations



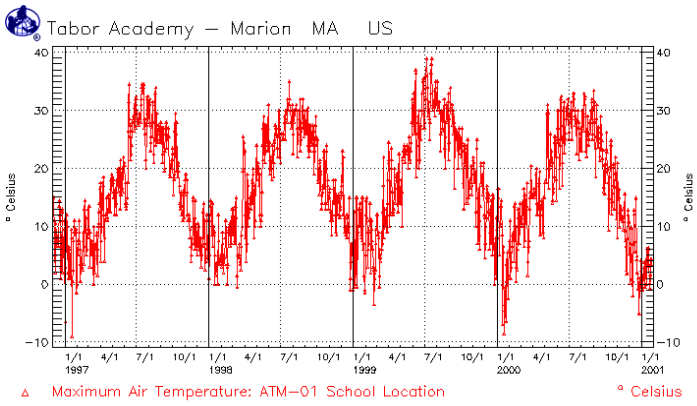
Students can visualize data in several different ways.

Maps





Graphs



Raw Data

Air Temperature

YYYYMMDD	LATITUDE	LONGITUDE	ELEVATN	SITEID	CTTMP	MXTMP	MNTMP
20000819	64.8497	-147.8268	133.0	ATM-01	10.0	-99.0	-99.0
20000819	64.8618	-147.7217	203.0	ATM-01	10.0	12.0	4.0
20000819	38.7777	-120.8897	454.0	ATM-02	32.0	34.0	24.0
20000819	32.1832	-110.9775	836.0	ATM-01	40.5	40.5	22.5
20000819	36.5197	-119.5463	27.0	ATM-02	30.5	32.0	-99.0
20000819	33.7769	-118.0386	7.0	ATM-01	27.0	29.5	14.0
20000819	39.1167	-105.0167	1647.0	ATM-02	31.0	31.0	18.0
20000819	31.7535	-106.4733	1165.0	ATM-02	36.0	37.0	20.0
20000819	31.7694	-106.5066	1154.0	ATM-01	30.0	31.0	20.0
20000819	48.5467	-117.9044	774.0	ATM-01	20.5	28.0	7.0
20000819	36.0612	-90.9550	84.0	ATM-02	31.0	33.0	18.0
20000819	29.0892	-97.2763	68.0	ATM-01	36.5	39.0	22.5
20000819	36.0906	-94.9200	280.0	ATM-01	29.0	29.0	19.0
20000819	29.0382	-82.6903	5.0	ATM-01	39.0	39.0	23.0
20000819	36.3720	-109.6243	1658.0	ATM-02	26.0	31.0	15.0
20000819	35.9510	-97.2358	278.9	ATM-01	36.0	36.0	19.0
20000819	35.2969	-94.0361	198.0	ATM-01	32.5	38.5	21.5
20000819	36.0000	-93.0032	834.0	ATM-01	32.0	38.0	21.0
20000819	28.1390	-82.5071	8.0	ATM-01	30.0	34.0	23.0
20000819	34.8982	-96.1000	239.0	ATM-01	35.0	-99.0	-99.0

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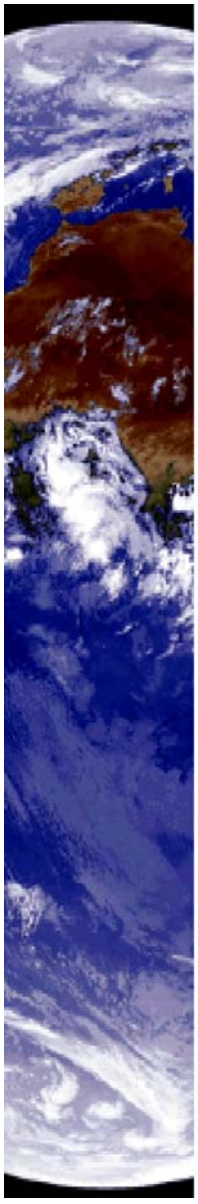
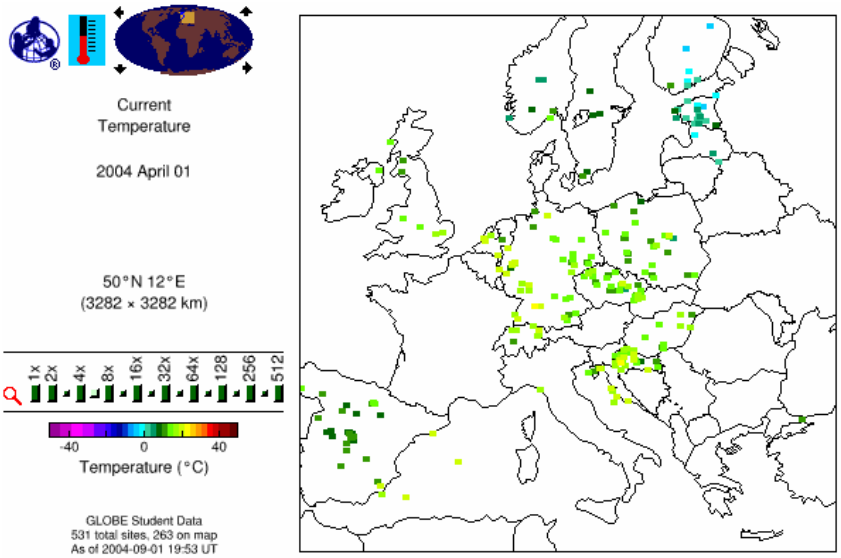
GLOBE Visualizations

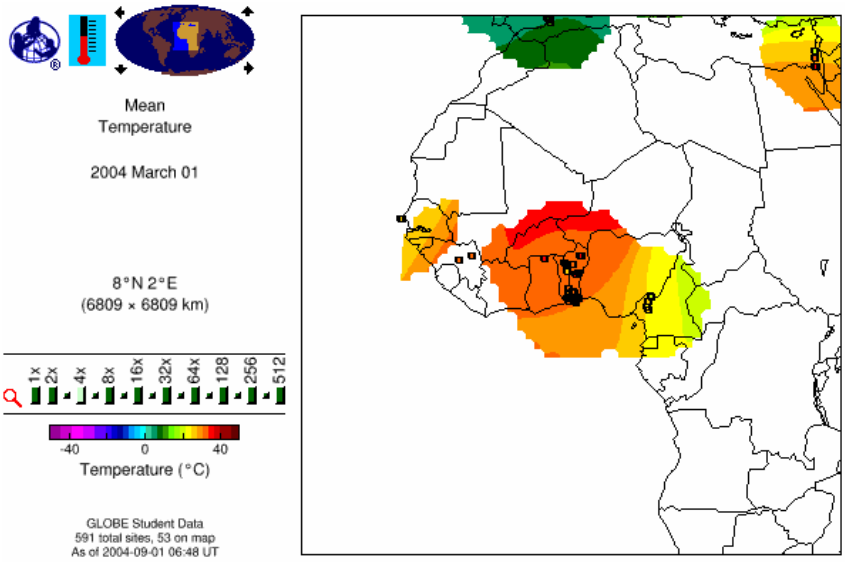


Data can be displayed as individual data in a map.



This map displays the current air temperature in Europe on April 1, 2004.

Data can be also displayed as contours in a map.



This map displays the mean air temperature in West Africa on March 1, 2004.

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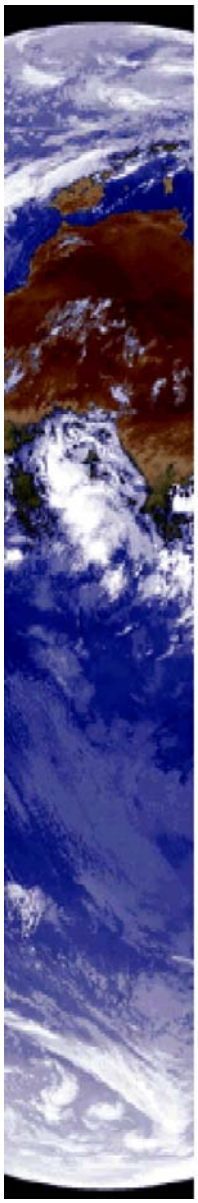
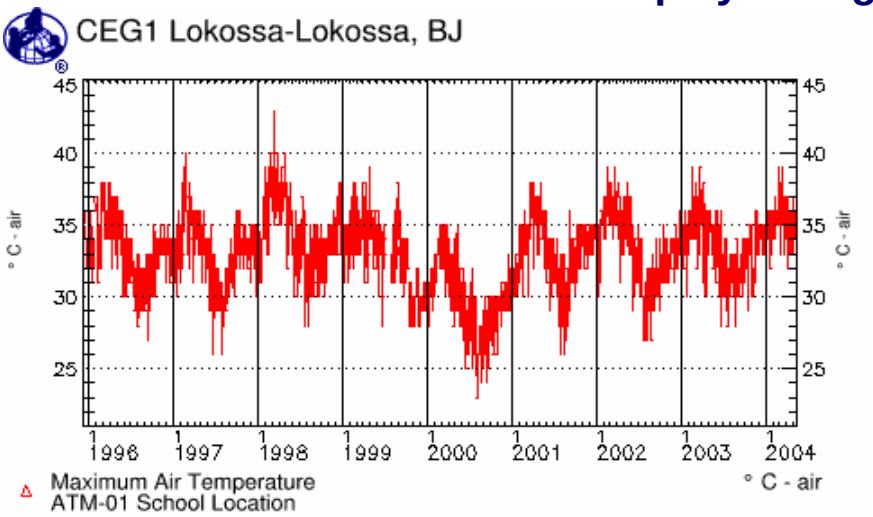
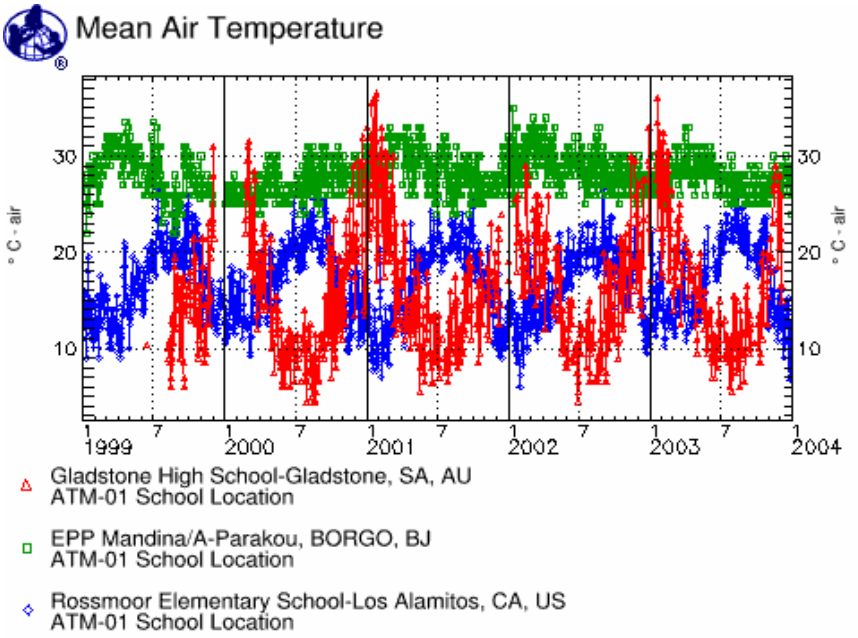


GLOBE Student data can also be displayed in graphs.



This graph shows maximum air temperature for a school in Benin, West Africa.

Data from up to six schools can be displayed in a graph.



This graph displays the mean air temperature for schools in Australia, Benin and the United States.

Air temperature and seasonal fluctuations can be seen for both Northern and Southern hemispheres as well as Equatorial.

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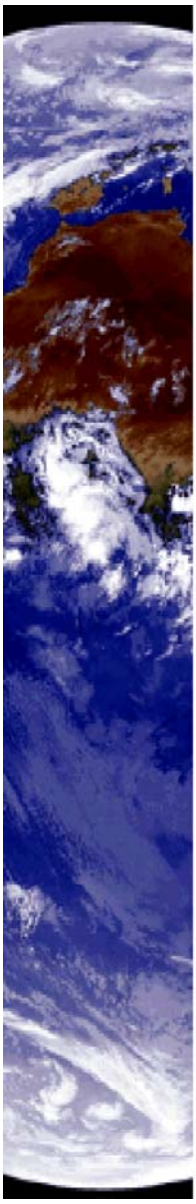
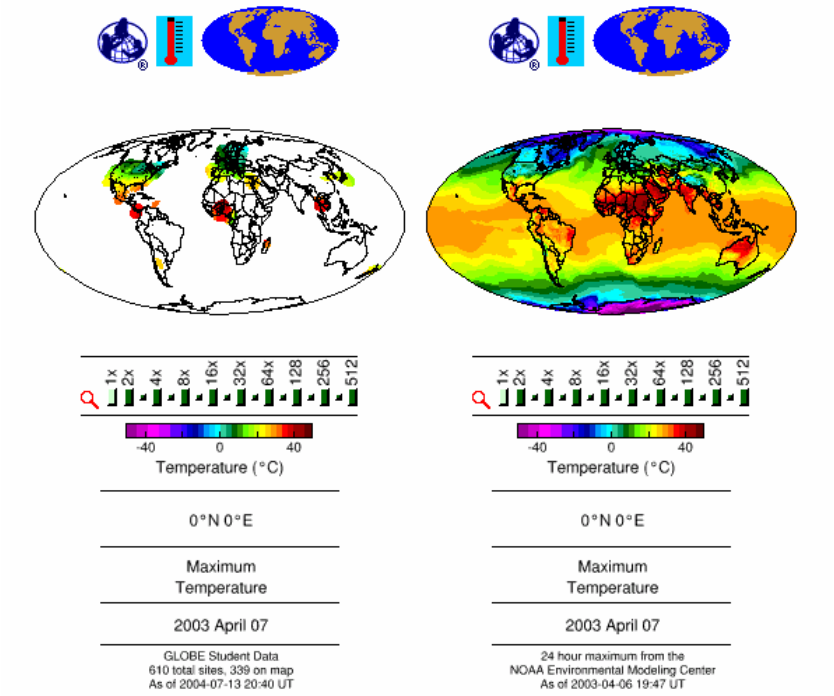
GLOBE Visualizations

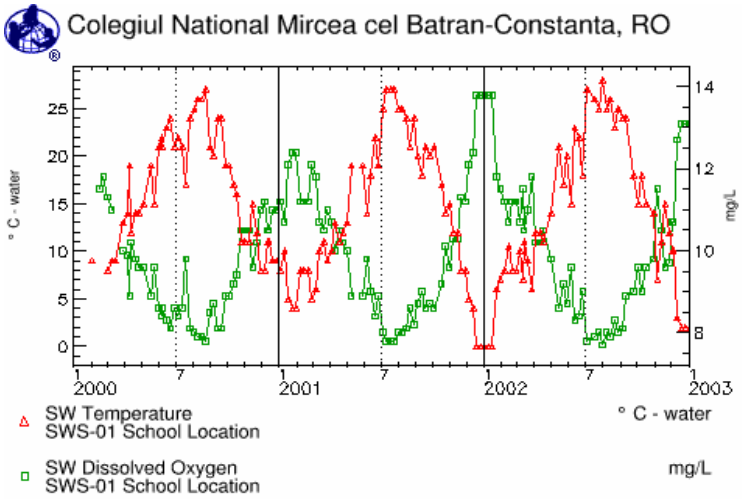


GLOBE Students can compare their data with data from satellite and model data.



This graphic is a comparison of GLOBE student data and NOAA Environmental Modeling Center data for April 7, 2003.

These data show the inverse relationship between water temperature and dissolved oxygen



Chemistry connection: this graph displays what Henry's law states: the solubility of gases generally decreases with increasing temperature.

The GLOBE Program